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**Synopsis of the North American Sub-families and
Genera of CYNIPIDÆ.**

BY WILLIAM H. ASHMEAD.

Family—CYNIPIDÆ.

Head generally small, transverse; labrum very minute; mandibles short, robust, toothed; maxillary palpi 5-jointed, labial palpi 2 to 4-jointed; antennæ slender, filiform, or sub-filiform, inserted on the middle of face, 12 to 16-jointed; thorax generally thick, oval; scutellum large, variable; wings with few nervures, anterior pair with seldom more than three or four cells, posterior pair with but a single thickened vein, occasionally apterous; abdomen petiolate or sub-sessile, oval, elongate oval or compressed, and usually with the second or third segment the largest; ovipositor spiral, hidden within two sheaths or plates; legs ordinary.

Classification of the North American Species.

Authors are by no means agreed in their arrangement of the complexity of forms recognized as *Cynips*, and in the present essay will be found a new classification, in accordance with what seems to me the most natural method and for which I am alone responsible.

The forms peculiar to our fauna seem naturally to divide into two sections, distinguishable from each other by venation and ventral characters as follows:

Section I, GYMNOGASTRI.—Venter visible, or visible for more than half its length; radial area long and narrow.

Section II, CRYPTOGASTRI.—Venter not visible, or with the tip alone occasionally exposed; radial area an equilateral triangle.

The first section includes the true gall makers or *Psenides*, the guest flies or *Inquilines*, and the peculiar genus *Ibalia*.

Their habits as far as known are phytophagous, although the *Ibaliæ* are supposed to be parasitic on wood-boring larvæ, and by some authors are placed with the *Figitides*. Their characters, however, place them naturally with the phytophagous *Cynipidæ*.

In the second section are included all the parasitic *Cynips* or *Figitides*; all are strictly entomophagous.

The North American *Cynipidæ* may be divided into five sub-families of nearly equal value, distinguished by characters given in the following table :

Synoptic Table of the Sub-families.

Section I.—GYMNOGASTRI Ashmead.

* *Radial area long and narrow.*

A.—Radial area closed; abdomen cultriform, segments about equal; venter visible.....Sub-family I, IBALIINÆ.

AA.—Radial area *seldom* closed; second abdominal segment occupying half, or but little more than half the whole surface of abdomen; venter visible.

Sub-family II, CYNIPINÆ.

AAA.—Radial area *seldom* open; second abdominal segment occupying the whole or nearly the whole surface; venter not visible its whole length.

Sub-family III, INQUILINÆ.

Section II.—CRYPTOGASTRI Ashmead.

** *Radial area an equilateral triangle.*

B.—Abdomen short, globose, or semi-globose; second abdominal segment longer than the others; scutellum round, convex.

Sub-family IV, ALLOTRIINÆ.

BB.—Abdomen elongate ovate, compressed, with apex more or less pointed; third abdominal segment the largest; scutellum quadrate, cupuliform or spined.....Sub-family V, FIGITINÆ.

Section I.—GYMNOGASTRI Ashmead.

Sub-family I.—IBALIINÆ.

This group contains one genus, easily recognized by the following characters:

Abdomen cultriform with all the segments about equal, fifth segment in ♀ being much larger than in ♂; wings with the veins more strongly developed than in any other of the Cynipidous groups; radial area very long, narrow and closed; antennæ filiform, ♀ 13, ♂ 15-jointed.

(1) **Ibalia** Latreille.

Sub-family II.—CYNIPINÆ.

To this group belong the true gall makers; they produce galls or abnormal deformations and excrescences on various trees and plants; the oak-rose and bramble being particularly subject to their attacks.

It is by far the largest and best known of the different groups, nearly one hundred species having already been described in the North American fauna, which represent thirteen genera.

The genera may be separated with the aid of the following table:

Synopsis Table of the Genera.

A.—Radial area open.

a.—Parapsidal grooves distinct, extending the whole length of mesoscutum.

b.—Thorax not very robust.

c.—Species naked, or not very hairy.

d.—Species shining.

Scutellum with one large fovea across base, radial vein strongly curved and incrassated at tip; antennæ longer than body, filiform; third joint one-third longer than fourth, in ♂ excised, joints long, cylindrical, small at base, gradually thickened and truncate at tip; ♀ 13, ♂ 15-jointed.....(1) **Belonocnema** Mayr.

(*Dryorhizoxenus* Ashm.)

Scutellum bifoveate; radial vein almost straight, ending some distance from costal edge; third abdominal segment but slightly shorter than second; antennæ reach the base of abdomen, flagellar joints cylindrical oval, ♀ 13–14, ♂ 14-jointed.....(3) **Diastrophus** Hartig.

Scutellum with two shallow transverse foveæ; wings long, radial vein reaching costal edge, tip slightly bent and obtusely thickened (agamic form with long hairs on antennæ, legs and thorax); petiole in ♂ long; antennæ subfiliform, long, third joint but slightly longer than fourth, ♀ 13–14, ♂ 15-jointed.

(13) **Dryophanta** Förster.

Scutellum with a deep transverse suture, no foveæ; abdomen greatly compressed, knife-edged below; ventral valve long; antennæ ♀ 14-jointed.....(5) ***Tribalia** Walsh.

Scutellum inflated, foveæ shallow and almost confluent; antennæ, third joint shorter than fourth, ♂ 13-jointed.

(4) ***Antistrophus** Walsh.

dd.—Species punctate.

Scutellum with two foveæ; radial vein reaching, or not quite reaching costal edge, tip thickened, obtuse; antennæ: third joint in ♀ twice or one-third longer than fourth, joints beyond eighth oval, cylindrical, or beyond fourth very short; in ♂ long, cylindrical, or oval cylindrical ♀ 12–15, ♂ 14–16-jointed.

(7) **Andricus** Hartig.

†.—Claws with one tooth; antennæ, third joint in ♂ twice or one-third longer than fourth, others long, subequal; in ♂ third joint excised, beyond fourth very short.

Sub-genus **Callirhytis** Förster.

††.—Claws with two teeth; antennæ: third joint one-third longer than fourth, joints to eighth long, cylindrical, subequal, following joints short.....Sub-genus **Andricus** Hartig.

* These two genera are unknown to me in nature, and the characters are taken from the author's descriptions.

Scutellum (apterous form) with one fovea; head much broader than thorax, wide back of eyes; abdomen large and long, with third, fourth, fifth and sixth segments subequal; antennæ with joints beyond third short, cylindrical, small at base, truncate at tip, somewhat serrate; (winged form) radial area quite narrow, with the radial vein barely reaching costal edge; antennæ longer and much more slender than in the wingless form, third joint in ♂ greatly excised, following joints short, ♀ 14, ♂ 15-jointed.

(10) **Biorhiza** Westwood.

cc.—Species very hairy.

Scutellum rounded, as broad as long, depressed at base with two small approximate foveæ; wings long, radial vein reaching costal edge; antennæ short, third joint but slightly longer than fourth, eighth and beyond cylindrical oval, ♀ 13–14-jointed.

(8) **Cynips** Linnaeus.

Scutellum rounded, without foveæ, or with a poorly defined one; head very narrow back of eyes; radial vein barely reaches costal edge, tip obtuse; eyes small; legs very hairy, third parapsidal groove wanting; antennæ long, slender, third joint but slightly longer than fourth, others long, subequal to seventh, following short, ♀ 13–14-jointed.....(12) **Holcaspis** Mayr.

aa.—Parapsidal grooves wanting, or very indistinct, not extending the whole length of mesonotum.

bb.—Thorax narrow, head full behind the eyes. Species smooth.

Scutellum without foveæ and ending in a blunt horn; forms apterous, or with rudimentary wings; antennæ ♀ 14-jointed.

(9) **Acraspis** Mayr.

Scutellum with a transverse curved groove at base, no foveæ; face full, cheeks with a distinct groove; antennæ: third joint in ♀ long, slender, cylindrical, others long, cylindrical oval, subequal; in ♂ third joint thickened, excised, following joints short, ♀ 13, ♂ 15-jointed.....(11) **Loxaulis** Mayr.

bbb.—Thorax robust, bulging. Species rugose, not very hairy.

Scutellum quadrate, elevated posteriorly, bifoveate; abdomen globose; radial vein acuminate, ending some distance from costal edge; wings black, or with a large blotch at base of radial area; antennæ short, third joint nearly twice as long as fourth, others short, cylindrical, ♀ 13–14, ♂ 15-jointed.....(6) **Amphibolips** Reinhardt.

bbbb.—Thorax not robust. Species polished.

Scutellum bifoveate; radial vein reaching costal edge; areolet and cubital vein very faint and occasionally obsolete; radial area occasionally obsolete; radial area occasionally entirely closed; antennæ and legs finely pubescent, antennæ long, subfiliform, ♀ 13–15, ♂ 15–16-jointed.....(14) †**Neuroterus** Hartig.

AA.—Radial area closed.

Scutellum bifoveate; ventral valve of ♀ greatly elongated, pointed and shining; antennæ ♀ 14, ♂ 15-jointed..(2) **Rhodites** Hartig.

† In *Neuroterus aprilinus* Giraud, the radial area is closed, and in two or three other European species in this genus it is partly closed, but all the American species known to me have an open radial area.

My genus *Dryorhizoxenus* and *Belonoenema* Mayr, are identical, and were described about the same time. While there can be no question raised as to my having forwarded my description for publication first, yet from correspondence with Dr. Mayr I find he has priority in publication, and I have given his name the preference.

Sub-family III.—INQUILINÆ.

All the species in this group are termed guest flies; they are galled and live in the galls made by species of the former sub-family, from which they are hardly distinguishable.

The much larger second abdominal segment and the almost always closed radial area easily distinguish them.

The species in our fauna represent but four genera separated as follows:

Synoptic Table of the Genera.

A.—Radial area closed, scutellum bifoveate.

b.—Face coarsely striate.

Thorax with distinct, almost parallel parapsidal grooves; second abdominal segment occupying nearly the whole surface of abdomen, divided apparently by a very delicate, connate suture; ovipositor sheaths projecting above upper surface of abdomen; antennæ in ♀ 12, ♂ 15-jointed.

(2) **Ceroptres** Hartig.

Thorax with parapsidal grooves converging behind; second abdominal segment occupying the whole surface of abdomen; petiole striate, ovipositor sheaths not projecting; antennæ in ♀ 14, ♂ 15-jointed, second joint in ♂ excised.....(3) **Synergus** Hartig.

bb.—Face not coarsely striate.

Thorax with parapsidal grooves delicate, converging behind; second abdominal segment in ♀ occupying nearly the whole surface of abdomen. in ♂ subequal with third; ventral valve greatly projecting; ovipositor sheaths projecting; antennæ ♀ 12, ♂ 14-jointed.

(1) **Periclistus** Förster.

AA.—Radial area open, scutellum broad, not foveate.

Thorax smooth, without parapsidal grooves; second abdominal segment occupying the whole surface of abdomen; ovipositor sheaths not projecting; antennæ with first joint very short, ♀ 13. ♂ 14–15-jointed.

(4) **Sapholytus** Förster.

Section II.—CRYPTOGASTRI.

Sub-family IV.—ALLOTRIINÆ.

In this group all the species are small, highly polished and closely allied to the Inquilinæ; they are, however, easily distinguished from that group by the subequal second and third abdominal segments and by their very long subfiliform, moniliform antennæ.

But two genera are represented in our fauna, all the species of which are parasitic on plant lice (*Aphididæ*).

The genera may be separated by the following table :

Synoptic Table of the Genera.

- A.—Scutellum rounded, smooth, convex, separated from mesonotum by a transverse groove ; no foveæ ; head wider than thorax ; thorax ovoid, stout, without parapsidal grooves ; antennæ longer than the body, filiform, ♀ 13, ♂ 14-jointed.....(1) **Allotria** Westwood.
- AA.—Scutellum rugose, not separated from the mesonotum by a transverse groove, bifoveate ; head wider than thorax ; parapsidal grooves almost parallel ; antennæ filiform, not longer than body, ♀ 13, ♂ 14-jointed.
(2) **Aegilips** Haliday.

Sub-family V.—FIGITINÆ.

As in the preceding group the species in this sub-family are highly polished, but the abdomen is much longer and compressed, and the third segment of abdomen is the largest.

The species in our fauna represent five genera, which may be separated by the following table :

Synoptic Table of the Genera.

- A.—Scutellum ordinary, bifoveate.
Abdomen elongate. with second and third segments almost equal ; petiole long or short, smooth ; parapsidal grooves wanting ; antennæ filiform, slender ♀ 13, ♂ 14-jointed.....(1) **Anacharis** Dalman.
- Abdomen with third segment longest ; thorax smooth, striate at sides and very slightly on disc, parapsidal grooves distinct ; petiole short, fluted ; antennæ moniliform, in ♀ 13, ♂ 14-jointed.....(5) **Figites** Latreille.
- AA.—Scutellum armed with a blunt tooth or spined, bifoveate.
Abdomen with the third segment the longest ; petiole short, striate ; thorax rugose or carinate ; parapsidal grooves distinct ; antennæ moniliform or filiform, ♀ 13, ♂ 14-jointed.....(2) **Onychia** Dalman.
- AAA.—Scutellum cupuliform, bifoveate ; thorax without parapsidal grooves.
Abdomen with the third segment occupying nearly the entire surface ; base of abdomen with a hairy girdle ; wings pubescent, often ciliate ; antennæ moniliform, gradually incrassated, ♀ 13, ♂ 15-jointed.
(3) **Eucoila** Westwood.
- Abdomen without hairy girdle at base ; scutellum unifoveate ; antennæ as in *Eucoila*, but with the three terminal joints suddenly thick.
(4) **Kleidotoma** Westwood.